REMARKS

Claims 1-30 are pending in the present application. Claim 26 has been amended. Reconsideration of this application is respectfully requested.

Claims Rejections under 35 U.S.C. §103(a)

The Action rejects Claims 1, 2, 4, 6, 10 and 11 under 35 U.S.C. §103(a) as being unpatentable over Lim et al. (US 20050093063). As recognized by the Examiner, Claim 1 recites the step of removing a second section of said first insulator layer exposing a bare first section of said semiconductor substrate.

As conceded by the Examiner, the disclosed purported, inventive method of Lim fails to remove a second section of said first insulator layer exposing a bare first section of said semiconductor substrate. In Lim's method for forming a multiple gate dielectric structure, Lim partially removes the gate dielectric layer 14 to form the gate dielectric portion 18 and the gate dielectric portion 20 of gate dielectric layer 14 in regions 6 and 8. (FIG. 2; ¶ [0019]).

In the rejection, the Examiner finds that it would have been obvious to one in the art to combine the teachings of Lim's method, where the gate dielectric layer 14 is partially etched, with Lim's background of invention, ¶ [0003], to achieve the features of Claim 1. Applicants respectfully disagree.

Lim's background of invention states that the complete etching of the gate oxide to define the thick gate oxide of the dual-gate-oxide (DGO) integration is undesirable because it roughens the exposed surface of the semiconductor substrate. (¶ [0003]). In order to resolve this issue, Lim teaches a method that partially etches the gate dielectric layer 14.

To establish a *prima facie* case of obviousness, three basic criteria must be met: (a) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (b) there must be a reasonable expectation of success; and (c) the prior art

reference (or references when combined) must teach or suggest all the claim limitations. *See* M.P.E.P. § 706.02(j).

Applicant submits that the Action does not set forth a *prima facie* case of obviousness for Claim 1 because there is no suggestion or motivation in either Lim's background of invention, ¶ [0003], or Lim's detailed description to modify Lim's inventive method or to combine the reference teachings. M.P.E.P. § 2141.02, VI provides that

> PRIOR ART MUST BE CONSIDERED IN ITS ENTIRETY, INCLUDING DISCLOSURES THAT TEACH AWAY FROM THE CLAIMS
> A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)

Considering Lim's disclosure in its entirety, Lim's description explicitly teaches away from exposing the substrate when removing portions of the first dielectric layer. Indeed, an express object of Lim is to protect the substrate during formation of multiple gate insulator layers. (See, Abstract, Pars [0003], [0004] and [0032]). Simply, viewing Lim's teaching as a whole, one of ordinary skill would not modify Lim's method to expose a substrate as described in the Background Section. To do so would contravene an express object of Lim.

This position is supported by M.P.E.P. § 2143.01, V which provides:

> THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE
> If [a] proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

M.P.E.P. § 2143.01, VI continues:

> THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE

> If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Lim's apparent object of avoiding damage to the substrate due to exposure thereof is achieved by partially etching the gate dielectric layer as described above. Therefore, one of ordinary skill would not modify Lim to expose the substrate as claimed. To do so would contravene the intended purpose of Lim and the principle of operation of Lim's method contrary to the guidance of the cited MPEP sections. For at least these reasons, it is respectfully submitted that Claim 1 is not obvious over Lim and is, therefore, allowable.

Claims 2, 4, 6, 10 and 11 depend from Claim 1 and are, therefore, allowable for at least the reasons set forth above with reference to Claim 1.

The Action rejects Claims 3, 8, 9, 12 and 13 under 35 U.S.C. 103(a) as being unpatentable over Lim et al. in view of Wolf et al. Claim 3 depends from Clam 1 and is, therefore, allowable for at least the reasons set forth above for Claim 1.

The Action rejects Claim 4 under 35 U.S.C. 103(a) as being unpatentable over Lim et al. in view of Ryoo (US 6,784,060). Claim 4 depends from Claim 1 and is, therefore, allowable for at least the reasons set forth above for Claim 1.

The Action rejects Claim 7 under 35 U.S.C. 103(a) as being unpatentable over Lim et al. in view of Shimizu et al. (US 20050158671). Claim 7 depends from Claim 1 and is, therefore, allowable for at least the reasons set forth above for Claim 1.

The Action rejects Claims 14-17, 19, 22 and 23 under 35 U.S.C. 103(a) as being unpatentable over Lim et al. in view of Ryoo.

Like Claim 1, independent Claim 14 recites the step of removing a second section of said first silicon oxide layer exposing a bare second section of said semiconductor substrate. For at

least the reasons set forth above in connection with Claim 1, it is submitted that the Action does not set forth a prima facie of obviousness. Accordingly, it is submitted that Claim 14 is allowable over the cited references.

Claims 16-17, 19, 22 and 23 depend from Claim 14 and are, therefore, also allowable over the art of record.

The Action rejects Claim 18 under 35 U.S.C. 103(a) as being obvious over Lim et al. in view of Ryoo and further in view of Yates et al. (US 20020173156A1). Claim 18 depends from Claim 14 and is, therefore, allowable for at least the reasons set forth above for Claim 14.

The Action rejects Claim 20 under 35 U.S.C. 103(a) as being obvious over Lim et al. in view of Ryoo and further in view of Shimizu et al. Claim 20 depends from Claim 14 and is, therefore, allowable for at least the reasons set forth above for Claim 14.

The Action rejects Claims 21, 24 and 25 under 35 U.S.C. 103(a) as being obvious over Lim et al. in view of Ryoo and further in view of Wolf et al. Claim 21 depends from Claim 14 and is, therefore, allowable for at least the reasons set forth above for Claim 14.

The Action also rejects independent Claim 26 under 35 U.S.C. 103(a) as being unpatentable over Masuoka (US 6,551,884) in view of Wolf et al. Claim 26 has been amended to correct "the exposed to top surface of substrate region" to read as "the exposed top surface of the substrate region."

Claim 26 recites the step of removing the photoresist pattern while forming a second insulator layer over the exposed top surface of the substrate region. Masuoka fails to teach or suggest removing the photoresist pattern while forming a second insulator layer over the exposed top surface of the substrate region as stated by the Action. Masuoka discloses a method of forming gate insulation films having different thicknesses. However, Masuoka discloses the step of forming the gate oxide film 15 only after the removal of the photoresist mask 14 (Lines 40-43, Col. 6), and forming the gate oxide film 17 only after the removal of the photoresist mask 16

(Lines 58-60, Col. 6). Wolf also fails to teach or suggest this feature. Therefore, it is submitted that the cited combination does not teach each feature of Claim 26. It is submitted that Claim 26 is not obvious over the combined teachings of Masuoka and Wolf and is allowable thereover.

The Action rejects Claim 27 under 35 U.S.C. 103(a) as being obvious over Masuoka in view of Wolf et al. and further in view of Bergman et al. (US 6,286,231). Claim 27 depends from Claim 26 and is, therefore, allowable for at least the reasons set forth above for Claim 26.

The Action rejects Claims 28-30 under 35 U.S.C. 103(a) as being obvious over Masuoka in view of Wolf et al., in view of Bergman et al. (US 6,286,231) and further in view of Chen (US 20020166572) and Nishiki et al. (US 20030106572). Claims 28-30 depend from Claim 26 and are, therefore, allowable for at least the reasons set forth above for Claim 26.

Claim 5

The Action neither rejects nor objects to Claim 5. Reconsideration of the allowability of Claim 5 is respectfully requested.

Conclusion

In view of the foregoing amendments and remarks, Applicant submits that this application is in condition for allowance. Early notification to that effect is respectfully requested.

The Commissioner for Patents is hereby authorized to charge any additional fees or credit any excess payment that may be associated with this communication to deposit account **04-1679.**

Respectfully submitted,

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